

Mr. Capron, *Lunar Eclipse, 1881, Dec. 5.* XLII. 5,

Sun's Advancing Limb. h m s	Mercury (centre)		Sun-spot.		Sun's Following Limb. h m s		Diff. m s
	h	m	h	m	h	m	
2 52 46	2 53 03	0 17	2 53 55	1 09	2 55 01	2 15	
55 40.5	55 56.5	16	56 50	09.5	57 56	15.5	
58 29			59 38	09	3 00 44	15	
3 01 01.5	3 01 15	13.5	3 02 10.5	09	03 16	14.5	
04 00.5	04 13	12.5	05 10	09.5	06 16	15.5	
07 08.5	07 19 5	11	08 17 5	09	09 23.5	15	
10 00	10 10	10	11 09	09	12 14.5	14.5	
12 58.5	13 07	03.5	14 08	09 5	15 13.5	15	
15 36	15 44	08	16 45	09	17 51	15	
18 14	18 21	07	19 23	09	20 29	15	
21 00	21 06	06	22 09.5	09.5	23 15.5	15.5	
24 03	24 08	05	25 11.5	08 5	26 17.5	14.5	
Third contact		3 34 58 by Chronometer.					
Fourth contact		3 35 50	"				

Tarrytown, New York:  
1881, December.

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*Notes on the Lunar Eclipse, 1881, December 5.*  
By J. Rand Capron, Esq.

Though the Moon rose eclipsed at 3<sup>h</sup> 50<sup>m</sup> 0<sup>s</sup> G. M. T. it was, owing to slight banks of clouds on the horizon, not until 5<sup>h</sup> 3<sup>m</sup> that it was seen from this locality. At that time it presented an interesting aspect, a small portion only being left uncovered. The opposite side of the disk to this glowed with a distinct, but not deep, red tint. This gradually melted into a golden tint, and finally into a pearly grey as it approached the bright part of the Moon. The uncovered part gradually got narrower, and at 5<sup>h</sup> 10<sup>m</sup> (5<sup>h</sup> 8<sup>m</sup> 0<sup>s</sup> at Greenwich) was considered to be at its narrowest. No red patches or brilliant tints were seen, but the Moon's configuration was well made out through the shadow. In the 3½-inch Cooke, power 50, the general appearance of the tinted globe, with its faint edging of partial light, was very charming. As the shadow passed off, the red tint was gradually lost, until when about two-thirds of the disk were uncovered it was not longer recognisable.

Throughout the eclipse it was noticed that the lighted portion of the Moon was very much softened into the obscured part without definite outline; and also that there was difficulty in distinguishing any boundary between the umbra and the pen-

March 1882. Mr. Tebbutt, *Observations of Comet III. 1881.* 263

umbra on the disk. The Moon was, however, low and the night misty. The occultation of  $\iota$  Tauri was seen at about the time given for it, but the "boiling" of the Moon's limb rendered any time observation valueless. Five photographs were taken, with the 6" Equatoreal, of the gradual passing-off of the shadow, and I present with this paper prints from the enlargements. There should have been six, but one image was by mistake duplicated. The sixth place is filled by a photograph of the Moon showing the ordinary appearance of its bright edge.

*Observatory, Guildown:*  
1882, January 24.

*Observations of Comet III. 1881, made at Windsor, New South Wales.* By John Tebbutt, Esq.

This comet was very difficult to observe. I detected it while sweeping for comets with a  $3\frac{1}{4}$ -inch Refractor on the evening of September 17. It was then invisible to the unassisted eye, and presented the appearance of an oval nebula, with a very gradual condensation towards the centre. On the evening of the 19th its aspect was greatly changed. It was the only evening on which there was anything like a central condensation with tolerably defined limits. There were also rudiments of a tail. From this date the comet became rapidly fainter, and during the last few days of its visibility it could be observed only by looking obliquely into the telescope. At no time would it bear a field illumination sufficiently strong to exhibit the spider lines of the filar micrometer. I was therefore compelled to employ the ring micrometer on the  $4\frac{1}{2}$ -inch telescope. The differential North Polar Distances for September 17, 18, 19, 30, and October 14, are unsatisfactory, owing to the near approach of the objects to the ring's centre. The mean places of the stars of comparison, where taken from the Washington Catalogues for 1872 and 1874, and the Sydney Catalogue for 1878, have been brought up to 1881° by means of the catalogue precessions. In all other cases the total precessions to 1881° have been derived from the annual precessions calculated for the mean dates by means of Peters's elements. Proper motion has been applied to the places of stars Nos. 11 and 14 only. For the parallax factors  $p$  denotes the corrections in seconds of time and arc for the Right Ascension and North Polar Distance respectively, and  $\Delta$  the comet's distance from the Earth. The equatoreal horizontal parallax of the Sun has been assumed  $8''85$ .

I may add that with the help of M. Backlund's Ephemeris, received from St. Petersburg, I have sought for Encke's Comet,